

AMENDMENTS TO THE DRAWINGS:

The drawings are amended as described below by presenting replacement figures as attached hereto.

The Office Action objects to the drawings for failing to show the fan recited in certain of the claims.

New FIG. 3 is submitted herewith showing the fan in the housing 4, and a new FIG. 5 shows an additional cross section. FIGS. 2 and 3 as filed, and the specification have been amended where necessary to correspond to the new Figures.

Approval of these new/amended drawings is respectfully requested.

II. REMARKS

A. Introduction

In the Office Action, claims 1-6 are rejected based on prior art, and the drawings are objected to.

In this Response claims 2-6 are canceled, claim 1 and the drawings have been amended, new claims 7 and 8 are added, and remarks are provided.

New claim 7 recites the embodiment wherein the plurality of cooling air passage portions is formed separately from the cylindrical member, such as shown by member(s) 41-43. New claim 8 defines each passage portion as a walled channel to create a separate air space, again like members 41-43.

B. Request For Acknowledgement Of Information Disclosure Statement Filed

Applicant's filed an Information Disclosure Statement on October 25, 2004, a copy of which is attached along with the date-stamped post card. It is respectfully requested that the PTO Form 1449 be countersigned by the Examiner and returned to the undersigned.

C. Grounds for Entry of this Response Pursuant to 37 C.F.R. 1.116 and Allowance of this Application

Applicants request entry of this Rule 116 Response because: (a) most rejected claims have been canceled; (b) it is believed that amendment of claim 1, which recites the second "window" embodiment shown in FIG. 2 as filed, addresses all outstanding § 103 issues and puts the pending claims, including new dependent claims 7 and 8 into condition for allowance; (c) the amendments and new claims were not earlier presented because Applicants believed in good faith that the cited prior art did not disclose the present invention as previously claimed; and (d) the amendments and new claims should not entail any further search by the Examiner since no new features are being added or new issues being raised.

D. Objections To The Drawings

The drawings are objected to for failing to show a fan as recited in claims 3, 4 and 6.

These claims are canceled, as noted above. Nevertheless, section 1.83(a) of 37 CFR indicates that "conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled

(e.g., a labeled rectangular box)". In the present case, the recited fan is known in the art, as shown in Japanese Reference No. 10-146021 of record. In Figs. 1 and 2 as filed, Applicant identified the fan as "4". See also, e.g., page 5, lines 11-20, page 9 lines 2-3, 10-11 and 19-20 and page 10, lines 1-5 of the present application.

Nevertheless, a new FIG. 3 has been added, expressly showing the fan 4 in the housing, FIG. 3 as filed is amended to FIG. 4 and a new FIG. 5 is added which, like FIG. 4, is a cross section of the motor shown in new FIG. 3.

Therefore, it is believed that the outstanding drawing objections are resolved.

E. Rejection Under 35 U.S.C. §103:

Pending claims 1-6 are rejected as being made obvious by a combination of Hiroyuki et al. and Endo, both of record. The former reference is cited for the basic structure of the present invention except the ability to see into the "cylindrical member", and the later is cited for showing a transparent housing or a window in the housing to view inside.

Claims 2-6 are canceled herein. Nevertheless, it is respectfully submitted that the present invention, as recited by amended claims 1, and new claims 7 and 8, was not rendered obvious by the cited art for the following reasons.

Claim 1 has been amended herein to recite the "window" embodiment of Fig. 2 and, more particularly, now recites a plurality of cooling air passage portions isolated from the supply section, integrally provided on the inside of the cylindrical member to extend toward the cooling fan, arranged to surround the supply section, and preventing cooling air from leaking out of the cylindrical member. The air passage portions have a space between them, and at least one open window allowing a visual observation from outside is formed in the cylindrical member in the space.

Of course, the Hiroyuki et al. device, like that of the present invention relates to moving cooling liquid into a rotary joint and a motor shaft through hole. In addition, the device moves cooling air from an inlet at one end of the motor to an outlet near a downstream fan. In order to improve the air movement, a cylindrical housing, i.e., "extension tube", is placed over the rotary joint between the motor body and the downstream fan. Thus, the device of Hiroyuki et al. is intended to cool the motor body via separate liquid and air supplies.

The abstract of Hiroyuki et al. notes that the tube 4 is merely an "exhaust (air sending) passage; and air is circulated ...through the tube 4 so as to cool the motor 1." Clearly, if any opening or window were formed in the tube 4, the air would escape to outside the motor, and

cooling would significantly suffer. Also, Hiroyuki et al. includes no suggestion of separate air passages within the tube 4 to direct the cooling air.

The question under Graham v. John Deere is whether one of ordinary skill, with knowledge of the solid "extension tube" 4 of Hiroyuki et al., would be taught to make at least a portion of the "extension tube" to include a window based on Endo. It is respectfully submitted that the answer is no.

Initially, a problem that the present invention seeks to address, in a device that uses both liquid cooling and downstream air cooling as now recited in independent claim 1, i.e., that a rotary joint can leak or break (see page 2, second full paragraph), does not even appear to be recognized by either cited reference. Most particularly, Endo includes no cooling aspect, liquid or air, and lacks any rotary joint, a downstream fan or a cylindrical member intended to prevent suction of air between the downstream fan and the motor body.

Even if one were to assume that rotary joint breakdown would be inherent, one of ordinary skill knows that it is important to make sure that the cylindrical housing reliably contains air, i.e., prevents suction. More particularly, as described at page 2, first full paragraph, "if suction of outside air happens around the supply section, a loss occurs in suction force of the cooling fan so that the cooling efficiency of the motor body deteriorates. In order to prevent the deterioration...the rotary joint is covered with a cylindrical member..." This is the Hiroyuki et al. device. Thus, the art teaches away from openings at the rotary joint, or otherwise interrupting the cylindrical housing around the rotary joint. Accordingly, one is not likely to consider putting openings therein, such as a window. Also, as Endo's upper and lower capsules 1 and 19 are merely clipped together with legs, the ability to reliably contain air therein is questioned.

Nevertheless, even if one were to consider using the window of Endo in the device of Hiroyuki et al., and without the benefit of the present specification, which is impermissible, one of ordinary skill would deem same to be an unnecessary structure, to add to the cost and complexity of the device without benefit (again remembering that the problem of the leakage/breakage is not disclosed in the cited art), and/or would possibly disrupt the air flow as discussed above. That is, as made clear in Endo, the only reason for putting the window in the upper capsule 19, or making same transparent merely is to see if the motor is operating. With the device of Hiroyuki et al., the operation of the motor can be easily seen already, i.e., by seeing whether the processing tool at the other end of the shaft is operable (see, e.g., page 4, last full paragraph over to page 5 and page 8, second full paragraph).

In light of the above, while Hiroyuki et al. describes the basic structure which required the improvement delivered by the present invention, as recited in amended claim 1, and Endo employs a window to see inside, there is no motivation for one of ordinary skill to incorporate a window in the "extension tube" of Hiroyuki et al., which is instrumental in the cooling of the motor body, but which Endo fails to show any similarity in need or structure.

Even if one were taught by Endo to put a window in the tube 4 of Hiroyuki et al., the cooling air would still merely escape. There is no suggestion in either reference of a plurality of spaced passages to contain the cooling air in the cylindrical member.

III. CONCLUSION

Based on the above amendments and remarks, it is respectfully submitted that claims 1, 7 and 8 are in condition for allowance.

Further, if there are any formal matters remaining after this Response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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